

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of :
Makoto AKIZUKI et al. :
Serial No. NEW : **Attn: APPLICATION BRANCH**
Filed August 27, 2003 : Attorney Docket No. 2003-1240

METHOD FOR FORMING GAS CLUSTER
AND METHOD FOR FORMING THIN FILM
(Rule 1.53(b) Continuation
of Serial No. 10/025,899,
Filed December 26, 2001)

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the provisions of 37 CFR 1.56, 1.97 and 1.98, Applicants request consideration of ☒ the references listed on attached form PTO-1449 and/or ☐ the additional information identified below in paragraph 3. A legible copy of each reference listed on the form PTO-1449 and each U.S. patent application listed below is enclosed, except a copy is not provided for each reference previously cited by or submitted to the Patent Office in prior parent application Serial No. 10/025,899.

1a. ☒ This Information Disclosure Statement is submitted:

within three months of the filing date (or of entry into the National Stage) of the above-entitled application, or

before the mailing of a first Office Action on the merits or the mailing of a first Office Action after the filing of an RCE,

and thus no certification and/or fee is required.

- 1b. ☐ This Information Disclosure Statement is submitted

after the events of above paragraph 1a and prior to the mailing date of a final Office Action or a Notice of Allowance or an action which otherwise closes prosecution in the application, and thus:

- (1) ☐ the certification of paragraph 2 below is provided, **or**
(2) ☐ the fee of \$180.00 specified in 37 CFR 1.17(p) is enclosed.

- 1c. ☐ This Information Disclosure Statement is submitted:

after the mailing date of a final Office Action or Notice of Allowance or action which otherwise closes prosecution in the application, and prior to payment of the issue fee, and thus:

**the certification of paragraph 2 below is provided, and
the fee of \$180.00 specified in 37 CFR 1.17(p) is enclosed.**

2. It is hereby certified

- a. ☐ that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the Statement, or
b. ☐ that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing the certification after making reasonable inquiry, was known to any individual designated in §1.56(c) more than three months prior to the filing of the Statement.

3. ☐ Consideration of the following list of additional information (including any copending or abandoned U.S. application, prior uses and/or sales, etc.) is requested.

4. For each non-English language reference listed on the attached form PTO-1449, reference is made to:
- a. ☐ a full or partial English language translation submitted herewith,
 - b. ☐ a foreign patent office search report (in the English language) submitted herewith,
 - c. ☐ the concise explanation contained in the specification of the present application at page ,
 - d. ☐ the concise explanation set forth in the attached English language abstract,
 - e. ☐ the concise explanation set forth below or on a separate sheet attached to the reference:
5. ☐ A foreign patent office search report citing one or more of the references is enclosed.

Respectfully submitted,

Makoto AKIZUKI et al.

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August 27, 2003

THE COMMISSIONER IS AUTHORIZED
TO CHARGE ANY DEFICIENCY IN THE
FEES FOR THIS PAPER TO DEPOSIT
ACCOUNT NO. 23-0975

Sheet 1 of 2							
FORM PTO 1449 (modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary) Date Submitted to PTO: August 27, 2003				ATTY DOCKET NO. 2003-1240		SERIAL NO. NEW	
APPLICANT Makoto AKIZUKI et al.				FILING DATE August 27, 2003		GROUP	
U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA	5,459,326	10/1995	Yamada			
	AB	5,110,435	5/1992	Haberland			
	AC	5,350,607	9/1994	Tyson et al.			
	AD	4,624,859	11/1986	Akira et al.			
	AE	4,066,527	1/1978	Takagi et al.			
	AF	4,882,023	11/1989	Wendman			
	AG	4,812,326	3/1989	Tsukazaki et al.			
	AH						
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AI						
OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)							
	AJ	"NEW HORIZONS IN MATERIALS PROCESSING WITH ICB", Isao Yamada, Proc. 14th Symp. on ISIAT '91, Tokyo, (1991), Ion Beam Engineering Experimental Laboratory, pp. 227-235.					
	AK	"IRRADIATION EFFECTS OF A MASS ANALYZED GAS CLUSTER ION BEAM ON SILICON SUBSTRATES", Y. Yamashita et al., Proc. 1st Meeting on IESI '92, Tokyo, Ion Beam Engineering Experimental Laboratory, pp. 247,250.					
	AL	"Irradiation effects of gas-cluster Co ₂ ion beams on Si", I. Yamada et al., Nuclear Instruments and Methods in Physics Research B74 (1993) pp. 341-346.					
	AM	"Surface modification with gas cluster ion beams", I. Yamada et al., Nuclear instruments and Methods in Physics Research B79 (1993) pp. 223-226.					
	AN	"A Method and apparatus for surface modification by gas-cluster ion impact", J.A. Northby et al., Nuclear Instruments and Methods in Physics Research B79 (1993) pp. 336-340.					
	AO	"Cluster Formation in Expanding Supersonic Jets: Effect of Pressure, Temperature, Nozzle Size, and Test Gas", Hagena et al., The Journal of Chemical Physics, Vol. 56, No. 5, 1 March 1972, pp. 1793-1802.					
EXAMINER				DATE CONSIDERED			

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA	5,091,009	12/1989	Nogami et al.			
	AB	5,561,326	1/1993	Ito et al.			
	AC	5,527,731	6/1996	Yamamoto et al.			
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						

FOREIGN PATENT DOCUMENTS								
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO	
	AJ	4-354865	12/1992	Japan			X	
	AK	5-102083	4/1993	Japan			X	
	AL	60-14440	1/1985	Japan			X	
	AM	63-38232	2/1998	Japan			X	
	AN	6-224146	8/1994	Japan				X

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)		
	AO	"Micromachining with cluster ions", Henkes et al., Vacuum/volume 39, no. 6, pp. 541-542, 1989.
	AP	
	AQ	

EXAMINER	"Cluster Formation in Expanding Supersonic Jets: Effect of Pressure, Temperature, Nozzle Size, and Test Gas", Hagena et al., The
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